UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/264,577	03/08/99	BORYS S	CASE-NO-1C

IM62/0714

HARRY M LEVY
EMRICH & DITHMAR
SUITE 3000
300 SOUTH WACKER DRIVE
CHICAGO IL 60606

EXAMINER	
WYSZOMIERSKI,G	
ART UNIT	**PAPER NUMBER**
1742	23

DATE MAILED: 07/14/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/264577	ARMSTRONG et al
Examiner	**Group Art Unit**
WYSZOMIERSKI	1742

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☒ Responsive to communication(s) filed on 3/8/99 (CIP Application).

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-20 is/are pending in the application.

Of the above claim(s)____ is/are withdrawn from consideration.

☐ Claim(s)____ is/are allowed.

☒ Claim(s) 1-20 is/are rejected.

☐ Claim(s)____ is/are objected to.

☐ Claim(s)____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number)____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received:____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s).____

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other____

Office Action Summary

1. Claims 4 and 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 4 does not further limit the subject matter of the independent claim. Clearly, the process of claim 1 in all cases produces elemental material, whether in batches or continuously. This claim may be rewritten as two separate claims, one drawn to production in batches and the other to a continuous process.

b) In claim 13, line 2, it appears that the word "halide" should be changed to --chloride--, in order to provide antecedent basis for the phrase "mixture of chloride vapors" later in this claim. Claims dependent upon claim 13 are likewise rejected under this statute.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9, 11, 13, 15, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Homme '017. Homme discloses reacting $TiCl_4$ vapor with molten sodium to form titanium and NaCl and other products, and separating the titanium from the salt and other products. The inert

gas of claim 17 is disclosed at Homme column 5, line 39. Thus, the Homme disclosure fully meets the limitations of the process as defined by the instant claims.

4. Claims 9, 11, and 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Worthington '931. Worthington similarly discloses reacting $TiCl_4$ vapor with molten sodium to form titanium and reaction products, and separating the titanium from the other products. The temperatures disclosed in Worthington are all considerably below the sintering temperature of titanium. Thus, Worthington fully discloses all limitations of the instant claims.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-7, 12, 14, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Homme.

Homme, described in item no. 3 supra, does not specify that the liquid alkali (sodium) reductant is present in excess of the stoichiometric amount, does not specify a temperature below the sintering temperature, and does not specify the sonic flow or sonic velocity limitations of

instant claims 3 and 5. These differences are not seen as resulting in a patentable distinction between the prior art process and that of the instant claims because:

a) Homme states that the amount of titanium metal formed is preferably equal to the amount consumed from the chloride; thus one of skill in the art would conclude that sufficient reductant is present to allow substantially complete reaction, i.e. at least a stoichiometric amount, and most likely an amount in excess of stoichiometric, of reductant is present. Further, the examiner submits that one of ordinary skill in the art would desire an excess amount of sodium in order to insure complete reduction of the chloride.

b) The sintering temperature of titanium is in the range of about 1000°C, and nothing in the prior art would indicate that such a temperature is ever present in Homme. Indeed, the highest temperature ever disclosed by Homme is 800-850°C (see Homme column 3, line 55).

c) Performing the Homme process while supplying the chloride vapor at a sonic flow velocity would fall within the purview of what is disclosed in the prior art.

Consequently, the Homme disclosure is held to create a prima facie case of obviousness of the presently claimed invention.

7. Claims 1-7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worthington.

Worthington, described in item no. 4 supra, does not disclose the excess stoichiometry or sonic flow limitations of the instant claims. However,

a) Worthington column 3, lines 9-12 indicate that relative portions of the chloride and sodium are not critical and, while stating that stoichiometric amounts are most suitable, indicates that an excess of sodium may be present. Further, the examiner submits that one of ordinary skill in the art would desire to have a reactant present in an excess amount in a given chemical reaction in order to insure complete reduction, i.e. to avoid the possibility of an incomplete reaction.

b) Performing the Worthington process while supplying the chloride vapor at a sonic flow velocity would fall within the purview of what is disclosed in the prior art.

Consequently, the Worthington disclosure is held to create a prima facie case of obviousness of the presently claimed invention.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Homme or Worthington, either of which in view of Evans '420.

The Evans patent indicates the conventionality in the art of obtaining titanium metal by a distillation process subsequent to the reduction of the metal from its chloride, i.e. subsequent to a process as disclosed by Homme or Worthington. Therefore, the disclosure of Evans, when combined with that of Homme or Worthington, would have taught the presently claimed invention to a person having ordinary skill in the art.

9. Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-41 of U.S. Patent No. 5,779,761, or over claims 1-

40 of U.S. Patent No. 5,958,106. Although the conflicting claims are not identical, they are not patentably distinct from each other because all of the limitations of the process of the instant claims form a part of the process as claimed in Applicant's prior patents, and the process of each generally includes the same set of process steps performed in the same order to achieve substantially the same result in all instances. In particular, the examiner notes the following:

a) Prevention of sintering--See '761 claim 4 or '106 claim 3,

b) Sonic velocity--See '761 claim 24 or '106 claim 8.

c) Excess of stoichiometric amount--See '761 claim 21 or '106 claim 16.

d) Temperature of reducing agent--See '761 claim 26 or '106 claim 9.

e) Particle diameter of instant claims 10 or 20--See '761 claim 38 or '106 claim 38.

Based upon the above, the examiner submits that a process as claimed of reducing a vaporous metal halide to elemental material using liquid alkali metal as a reductant, including all of the preferred embodiments as recited in the instant claims, would have been obvious in view of the claims of either the '761 or '106 patents.

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. The remainder of the art cited on the enclosed PTO-892 form is of interest. This art is held to be no more relevant to the claimed invention than the art as applied in the rejections, supra.

12. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because it does not identify the citizenship of inventor Armstrong.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (703) 308-2531. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (703) 308-1146. The fax phone number for this Group is (703) 305-7719. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP ~~1100~~ 1700

GPW
July 13, 2000